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Letter to Editor

Thalassemia and heat shock proteins

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To the editor:

Thalassemia and Heat Shock Proteins

Thalassemias are hereditary hemoglobinopathies characterized by decreased or absent production of one or more globin chains. They are classified into two main groups, alpha and beta thalassemia. Individuals with beta thalassemia can be classified as major, intermediate, minor, and also as transfusion-dependent or non-transfusion-dependent [1].

The anemia seen in thalassemias is caused by ineffective erythropoiesis and increased hemolysis. The mechanisms of ineffective erythropoiesis include apoptosis and phagocytosis by bone marrow macrophages. One of the mechanisms involved in apoptosis has been shown to involve the sequestration of heat shock proteins found in the cytoplasm of red blood cell precursors [2].

Heat shock proteins (HSP) are compounds that protect the organism from environmental stress and are synthesized at high rates during this time. They play a role in protein folding correctly, correcting misfolding and assembly. HSP-70 heat shock protein is a heat shock protein that plays a role in the differentiation of erythroid precursors and increases the survival time of erythroid precursors by preventing apoptosis via the main transcription factor GATA-binding factor-1 (GATA-1) that plays a role in erythropoiesis [3].

Heat shock protein 27 (HSP27) is a multifunctional protein that plays a role in the inhibition of apoptosis and actin cytoskeletal remodeling. There are also studies suggesting that it plays a role in maintaining serum pro-oxidant and anti-oxidant balance in beta-thalassemia major [4].

There are many studies in the literature showing that heat shock proteins play a role in various diseases. The guiding effects of heat shock proteins in thalassemia patients have also been emphasized in various studies. The relationship between heat shock proteins and hypoxia and tissue damage in thalassemia patients may be guiding in the management of transfusion frequency and transfusion-related complications, especially in transfusion-dependent patients. In studies, it would be more effective in terms of reliability and guidance to evaluate all heat shock proteins (HSP-70, HSP-90, HSP-60, HSP-27, etc.) that affect erythropoiesis and can be used.

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